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The Role of Quality of Academic Information Systems and Facilities on Student Loyalty

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Abstract

Research aims: This study determines the effect of academic information systems and facilities on student loyalty at the Faculty of Economics, Universitas Prima Indonesia, through satisfaction as an intervening variable.

Design/Methodology/Approach: Data analysis used path analysis and feasibility test of the model with the SmartPLS 3.0 program. The population in this study was all 5th term students of Management Undergraduate Degree and Accounting Undergraduate Degree. The number of samples was determined using the Krejcie-Morgan table so that 291 people were selected.

Research findings: The results showed that the academic information system had a significant positive effect on student loyalty through satisfaction; the satisfaction variable mediated the academic information system on student loyalty (t-statistic = 2.131 (> t-table); p-value = 0.034). Likewise, the effect of facilities on student loyalty through satisfaction as an intervening variable revealed a significant value (t-statistic = 2.220 (> t-table); p-value = 0.027).

Theoretical contribution/Originality: The novelty of this research is that increasing student loyalty can be done by improving academic information system services and adequate campus facilities.

Practitioner/Policy implication: The university management must provide quality facilities and infrastructure to increase student loyalty.

Keywords: Academic Information System; Facilities; Satisfaction; Loyalty

Introduction

The competitive situation in higher education institutions (HEIs) requires universities to continuously evaluate the strategy and quality of services provided to students as consumers. HEIs should increase student loyalty through active interaction between them and students. Given that consumer satisfaction positively affects loyalty, the university's strategic goal is to increase student satisfaction (Díaz et al., 2016). Student satisfaction is a key performance indicator for HEIs, so many universities have implemented a strict quality assurance process. Many universities also increase accountability by streamlining processes and improving services to students, faculty, and staff (Bryant & Bodfish, 2014).

At present, the highly competitive market structure in the higher education sector in line with globalization and the digital revolution has created fierce competition. The rapid growth in the number of HEIs creates a competitive environment where only well-served institutions can be a driving factor for students to choose a particular university. Factors such as service quality, constructive environment, and facilities for students can

impact student satisfaction and influence their decision to choose a university (Mallika Appuhamilage & Torii, 2019). Rojas-Méndez and Vasquez-Parraga (2014) stated that student loyalty is an important measure in the success of HEIs that retain and graduate students. It is a statistically significant effect of perceived service quality on satisfaction and affects trust and commitment, which in turn affects the desired loyalty.

It is critical for university management to know what factors affect student loyalty. The measurement of loyalty will guide university management to devise policies to retain students. The main determinants of student loyalty are perceived service quality, student satisfaction, and university image. Deshields et al. (2005) asserted that HEIs focus on identifying and meeting the needs and expectations of their students. These factors include student academic achievement, faculty performance, classroom environment, learning facilities, and the institution's reputation. Indrawati's study (2018) uncovered that tangibles, reliability, responsiveness, assurance, empathy, academic information systems, and satisfaction simultaneously and significantly affected loyalty.

Moreover, the use of information technology in HEIs is commonplace, which functions to manage class schedules, student study plans, and student study results. In this case, the management of academic administration is an activity with a high routine factor, so it is prone to errors if unassisted by tools. Hence, the use of academic information systems can overcome the obstacles faced so that data and information can quickly reach users. Another benefit of using the academic information system is that universities can increase the efficiency and effectiveness of academic administration management, improve the quality of academic administration services to stakeholders, especially students, and increase the competitiveness of higher education (Yindrizar et al., 2019).

Several previous studies regarding student loyalty have been conducted, but still few studies relate the role of academic information systems and the facilities variables provided by universities. The factors determining student loyalty widely studied include student satisfaction, service quality and university image, and education costs (Doan, 2021). Other factors influencing student loyalty include service quality, college image, tuition fees, trust, and satisfaction (Lai et al., 2019).

Specifically, Universitas Prima Indonesia is one of the private universities in Medan City that manages academic administration using academic information system technology. In the process of organizing academic activities, speed is required in serving administrative activities and responding to complaints from students. In the academic information system, there is a platform, namely the "student service system." It is a platform where students can submit complaints and questions. For example, submitting applications to ask for letters and complaints about grades or marks, room facilities, and others. This platform eases students to submit or convey problems and complaints related to academics.

Based on observations made by researchers on the academic information system feature, several barriers were revealed, such as delays in responding to requests and complaints submitted by students. The university's lack of supervision and training has resulted in

less responsiveness and lack of initiative by faculty management staff in doing the job they are assigned to do. The initial survey results using the interview method with management staff also showed that the staff had difficulty understanding the sentences of students who submitted applications, so the staff had difficulty understanding their needs, which resulted in difficulties in responding to requests.

Researchers then identified problems in using academic information systems related to the quality of services provided by the staff managing the academic information system services. Students also complained about the condition of learning facilities that were incomplete and poorly maintained. This condition implies that maintenance was not carried out routinely. Student dissatisfaction with academic information systems and facilities is assumed to reduce student loyalty (Purwati et al., 2018). For this reason, this study analyzes the effect of academic information systems and facilities on student loyalty, with student satisfaction as an intervening variable.

Literature Review and Hypotheses Development

Academic Information System

Murdick et al. (1985) suggested that the academic information system is a series of activities supported by systems used to process information within an organization. The information services provided are related to academic and web-based data (Setiyawan et al., 2013). The use of information systems contributes to managing new student recruitment, teaching and learning activities, student academic data, lecturer and education staff data, financial management, and management policymaking (Aswati et al., 2015). A high-quality system needs to meet indicators such as ease of use, flexibility, speed of access, security, accuracy, timeliness, completeness of the information, and a clear format (DeLone & McLean, 1992). Achieving a quality information system also requires five basic resources, including human (brainware), hardware, software, data, and networks, with the main task of converting data into information by entering, processing, and providing an output in the form of information to produce policies and decisions in achieving organizational goals (O'Brien, 2005). In this case, universities as organizations engaged in education must be able to use and use information technology to support operational activities in producing accurate information (Agnes et al., 2018). In addition, the purpose of building an information system is to provide satisfaction or make it easier for users to meet their needs. An effective and user-friendly academic information system for students can help smooth study as long as students study at a university. Adequate academic services in the form of registration, payment of tuition fees, study plans (KRS) and grades (KHS), and student final project information can also provide comfort and convenience for students (Henim & Sari, 2020). Previous research has proven that using information systems in universities affects student satisfaction (Utomo et al., 2021; Qadri et al., 2021).

Facility

Of course, learning activities in higher education require facilities that can support the optimization of learning. By definition, learning facilities can be interpreted as all needed in the teaching and learning process, both mobile and immobile, to achieve educational goals smoothly, regularly, effectively, and efficiently (Muhroji & Fathoni, 2006). Learning facilities include learning media, learning tools, school supplies, and others (Sanjaya, 2016). Universities must develop six critical infrastructures for accelerated growth: physical infrastructure, digital infrastructure, innovative academic and training infrastructure to build trust, intellectual property infrastructure, emotional infrastructure, and network infrastructure (Aithal & Aithal, 2019). Besides, academic activities, such as teaching and research, can be improved effectively under a conducive atmosphere of adequate infrastructure facilities (Fagbohunka, 2017). A study concluded that the learning environment (classrooms, teaching aids, libraries) and infrastructure (dormitory, sports facilities, parking & transportation) also contributed positively to student achievement (Zurainan, 2016). Previous literature has also shown that the availability of good and quality supporting facilities could increase student satisfaction (Dora, 2017; Napitupulu et al., 2018; Hasan & Hosen, 2020).

Satisfaction

Kotler and Keller (2009) stated that satisfaction is an individual's liking/dislike of a product after comparing product quality with expectations. In the context of higher education, it can be concluded that students will be more motivated, loyal, and perform well if their institution has important educational facilities with affective teaching and training staff (Malik et al., 2010). A study's results revealed that student loyalty was predicted by student satisfaction; perceived quality impacted the value perceived by students (Brown & Mazzarol, 2008). Conversely, the implications of student dissatisfaction can be disastrous for institutions in recruiting prospective new students, and often negative word of mouth from past and present students of the institution can be disastrous for a potential application of the institution by prospective students in the future. Thus, student satisfaction is a necessity for a university to compete sustainably in the market (Brown & Mazzarol, 2008).

Loyalty

Loyalty is a measure of customer loyalty in using a product brand or service brand at a certain time when there are many choices of products or services that can meet their needs, and customers can get them (Nugroho & Sudaryanto, 2013). In this case, student loyalty is an important measure of the success of institutions offering higher education to retain students until their educational needs are met (Tariq et al., 2020). Student loyalty has short-term and long-term impacts on educational institutions. Loyal students positively influence teaching quality through active participation and committed behavior (Bakrie et al., 2019). Students are also willing to recommend the institution to others. In addition, an increasing number of graduates are continuing their education to a higher level at the same university to increase their knowledge (Navarro et al., 2005). The long-

term positive relationship between an institution and its students can help the institution in many ways; positive word of mouth from students about their past studies can help an institution market itself efficiently to its current and future students (Tripathi & Mukerji, 2013). A strong alumni network will also assist the institute in gaining a competitive advantage by providing new graduates with attractive job opportunities (Ehigie & Taylor, 2009).

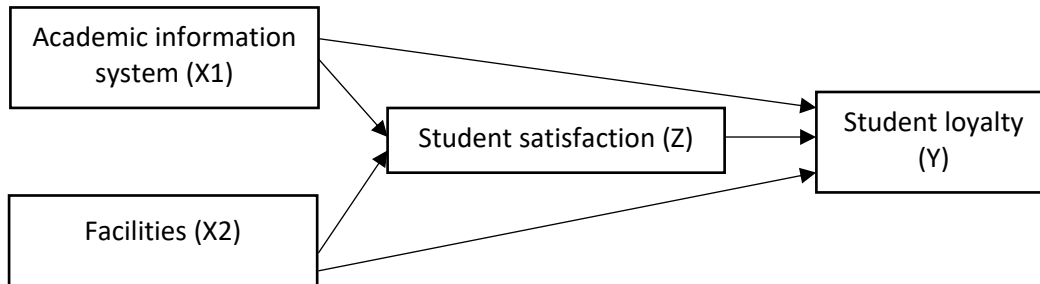


Figure 1 Conceptual Framework

Relying on the theoretical basis and conceptual framework that has been identified, the following research hypotheses are proposed:

H₁: Academic information system positively influences student satisfaction.

H₂: Facility positively influences student satisfaction.

H₃: Academic information system positively influences student loyalty.

H₄: Facility positively influences student loyalty.

H₅: Student satisfaction positively influences student loyalty.

H₆: Academic information system influences student loyalty through satisfaction as an intervening variable.

H₇: Facility influences student loyalty through satisfaction as an intervening variable.

Research Methods

This explanatory research aimed to explain the causal relationship between independent, intervening, and dependent variables. This study used path analysis to analyze the effect of the quality of academic information systems and facilities on loyalty through student satisfaction as an intervention. The hypotheses tested included: 1) the influence of the quality of academic information systems and facilities on student loyalty, 2) the influence of the quality of academic information systems, facilities, and satisfaction on student loyalty, and 3) the influence of the quality of academic information systems and facilities through satisfaction on student loyalty. The magnitude of the influence of the causal and

consequential variables was measured by calculating the path coefficient. Furthermore, the influence of other dependent variables was determined with the formula: $P_{y_1} = \sqrt{1 - R^2_{Y_1 X_2}}$ where $R^2_{Y_1 X_2}$ = coefficient, stating the total determination of all causal variables on the effect variable. Furthermore, path coefficient testing was conducted to see whether a path coefficient was significant or insignificant. This test can be conducted as a whole (overall test) and partially on each existing pathway to answer the hypotheses proposed using the t-test statistic (H_0 is rejected if $t\text{-count} > t\text{-table}$). The model used as a guide for path analysis in this study can be seen in Figure 1.

The population in this study was 1155 students in the 5th term of Management Undergraduate Degree and Accounting Undergraduate Degree, Faculty of Economics, consisting of 500 men and 656 women. In the process of clustering subjects, the researchers used the cluster random sampling technique. Clustering was conducted on 5th-semester students assuming that the samples were students who were still actively studying, including the use of academic information systems and facilities. Referring to Krejcie and Morgan (1970), the number of samples was 291 students in the 5th semester of the Faculty of Economics, University Prima Indonesia.

The researchers employed questionnaires and documentation studies in data collection. Answers to the questionnaire were categorized based on a Likert scale, where strongly agree was given a score of 5 and strongly disagree was given a score of 1. In analyzing the data, the researchers used partial least square (PLS), a component or variant-based Structural Equation Modeling (SEM). The stages in the analysis included analyzing the outer model to ensure that the measurement used was suitable for measurement (valid and reliable), conducting an inner model analysis to describe the relationship between latent variables based on substantive theory, and testing hypotheses using statistical values (H_a is accepted if $p < 0.05$).

Results and Discussion

This study involved 291 5th term students of the Faculty of Economics, Universitas Prima Indonesia, as research subjects and focused on analyzing the influence of the quality of academic information systems and facilities on loyalty through student satisfaction as an intervening. This study used path analysis to analyze data with the help of SmartPLS 3.0. The characteristics of the respondents analyzed in this study included the study program and gender. Most of the respondents in this study were women, as many as 204 people (70.1%), while men were 87 people (29.9%). Of the two study programs in the Faculty of Economics, the highest number of students was in the Management Study Program (64.9%) (Table 1).

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Table 1 Characteristics of Respondents (n = 291)

Characteristic	n	%
Sex		
Female	204	70.1%
Male	87	35.9%
Program		
Management Undergraduate Degree	189	64.9%
Accounting Undergraduate Degree	102	35.1%

Validity and Reliability Tests

In testing the validity of the reflective indicators, it can be done using a correlation between the indicator score and the construct score. Chin (1998) stated that a correlation could be said to meet convergent validity if it has a loading value greater than 0.5.

Table 2 Output Results for Outer Loading and Cross Loading

	Facilities (X2)	Satisfaction (Z)	Loyalty (Y)	Academic Information System (X1)
X1.1	0.616**	0.709**	0.631**	0.852*
X1.2	0.664**	0.670**	0.676**	0.830*
X1.3	0.580**	0.585**	0.517**	0.807*
X1.4	0.518**	0.593**	0.529**	0.800*
X1.5	0.550**	0.631**	0.565**	0.844*
X1.6	0.582**	0.643**	0.619**	0.832*
X1.7	0.640**	0.696**	0.657**	0.909*
X1.8	0.675**	0.767**	0.664**	0.889*
X2.1	0.868*	0.688**	0.612**	0.585**
X2.2	0.884*	0.722**	0.658**	0.634**
X2.3	0.872*	0.740**	0.650**	0.664**
X2.4	0.840*	0.665**	0.611**	0.505**
X2.5	0.860*	0.752**	0.651**	0.664**
X2.6	0.803*	0.714**	0.635**	0.609**
Y1.1	0.665**	0.641**	0.849*	0.610**
Y1.2	0.640**	0.660**	0.885*	0.610**
Y1.3	0.635**	0.616**	0.870*	0.660**
Z1.1	0.713**	0.863*	0.650**	0.705**
Z1.2	0.753**	0.884*	0.650**	0.629**
Z1.3	0.712**	0.893*	0.653**	0.691**
Z1.4	0.618**	0.795*	0.570**	0.622**
Z1.5	0.810**	0.892*	0.660**	0.751**

*Outer Loading **Cross Loading

The calculations in Table 2 show that the loading factor was above the recommended value of 0.5, so the indicators used in this study met convergent validity. Hair et al. (2011) stated that if the average variance extracted (AVE) value is greater than 0.50, the indicators used have met convergent validity. The test results showed that the AVE value of all variables was > 0.50, so it can be said that each indicator measured could reflect its respective variables validly (see Table 3).

In the reliability test, the criteria used are that a latent variable has good reliability if the composite reliability value is greater than 0.7 and Cronbach's alpha value is greater than 0.7. The test results revealed that all latent variables measured in this study had Cronbach's Alpha and composite reliability values greater than 0.7, so it can be said that all latent variables were reliable.

Table 3 The Results of the Latent Variable Reliability Test

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted
Academic Information System (X1)	0.943	0.947	0.953	0.716
Facilities (X2)	0.926	0.927	0.942	0.731
Loyalty (Y)	0.837	0.836	0.902	0.754
Satisfaction (Z)	0.916	0.920	0.937	0.750

Evaluation of the Structural Model (Inner Model)

Evaluation of the structural model in SEM with PLS was conducted by performing the R-squared (R^2) test and significance test through the path coefficient estimation. The R^2 test on the satisfaction variable showed that the quality of the academic information system (X1) and facilities (X2) could explain student loyalty (Y) through student satisfaction (Z) at 77.1%, while 22.9% was explained by other independent variables excluded from this study. In the student loyalty variable, an R-Square value of 0.635 was obtained, indicating that the quality of the academic information system (X1), facilities (X2), and student satisfaction (Z) could explain student loyalty (Y) by 63.5%, whereas 36.5% was explained by other independent variables not included in this study.

Table 4 R-square Test Results

	R-square	Adjusted R-square
Loyalty (Y)	0.771	0.769
Satisfaction (Z)	0.635	0.632

Significance Test

The significance test of the SEM model with PLS determines the effect of exogenous variables on endogenous variables. Hypothesis testing using the SEM PLS method was carried out by conducting the bootstrapping process with the help of the SmartPLS 3.0 computer program. This analysis was conducted by comparing the t-table value with the t-statistics value generated from the bootstrapping results in PLS. The hypothesis is accepted (supported) if the t-statistics value is higher than the t-table value (1.993) with a significance level of 5% (p-value 0.05) (Ghozali & Latan, 2015).

Table 5 Path Coefficient

Construct	Original Sample (O)	Mean	SD	t-statistics	p-values
Academic Information System → Satisfaction	0.385	0.387	0.053	7.323	0.000
Academic Information System → Loyalty	0.318	0.319	0.066	4.789	0.000
Facilities → Satisfaction	0.560	0.560	0.050	11.215	0.000
Facilities → Loyalty	0.369	0.369	0.071	5.178	0.000
Satisfaction → Loyalty	0.178	0.177	0.078	2.271	0.024

*t-table=1.968 α= 0.005

Table 6 Indirect Effect

Construct	Original Sample (O)	Mean	SD	t-statistics	p-values
Academic Information System → Satisfaction → Loyalty	0.068	0.069	0.032	2.131	0.034
Facilities → Satisfaction → Loyalty	0.100	0.099	0.045	2.220	0.027

*t-table=1.968 α= 0.005

The hypothesis testing results on the variable quality of academic information systems on satisfaction and loyalty had positive values of 0.385 and 0.318, with t-statistics values of 7.233 (> t-table). Thus, it is concluded that the quality of academic information systems had a positive and significant effect on student satisfaction and loyalty. The indicator that contributed most to the quality of the academic information system was completeness, with a loading factor of 0.909. It can be concluded that the better the information system provided, the greater the effect it will have on student satisfaction to use the information system more often for academic activities. A study by Syastra (2013) concluded that the academic information system had a significant effect on student satisfaction at STT Indonesia Tanjungpinang, which was seen from the value of the parameter coefficient of 0.637 or 63.7%. In addition, the better the academic information system, the better the quality of academic services will be (Aulianto et al., 2012). Hence, academic information systems play an important role in supporting academic quality, and one example is academic information on infrastructure (Hamzah & Purwati, 2017).

An accurate academic information system can also create student satisfaction, which leads to student loyalty. The path coefficient test results between the quality of academic information systems and student loyalty showed a significant effect (t-statistic = 4.789 (> t-table): p-value = 0.000). It can be concluded that the better the academic information system provided, the greater the effect it will have on the high student loyalty to using the system provided by Universitas Prima Indonesia and a positive impression on the use of the academic information system. However, research by Purwati et al. (2018) disclosed that improving the quality of academic information systems would increase student satisfaction but not necessarily and directly increase student loyalty. It means that student loyalty is indirectly affected by student satisfaction with the system's quality.

Meanwhile, the hypothesis test on the facility variable on satisfaction revealed significant results with the t-statistics value of 11.215 ($>$ t-table). It shows that facilities are an important factor in providing comfort and supporting a more conducive teaching and learning process. It can be concluded that the completer and more adequate the facilities provided, the greater the impact on student satisfaction in studying at the Faculty of Economics, Universitas Prima Indonesia. Higher education facilities are also a form of support for implementing the academic service process. Tjiptono (2011) in Warnadi (2019) asserted that the dimensions of facilities in higher education include flexibility, arrangement, good quality, the feasibility of use, completeness as needed, academic support, good design, ease of operation, and availability of information systems. Weerasinghe and Fernando's (2018) research also supports this with the conclusion that the completeness of university facilities had a significant effect on student satisfaction. In addition, the quality of study programs and the university's image are also strong predictors.

In this study, the availability of facilities also affected student loyalty (t-statistic = 5.178 ($>$ t-table): p-value = 0.000), and it can be concluded that the completer and more adequate the facilities provided, the greater the effect on the high student loyalty to study at the Faculty of Economics and introduce it to the wider community. In this regard, facilities are physical needs that must be present before the service is offered to students. Students will experience feelings of joy and happiness if they can enjoy complete and good campus facilities, creating loyalty for every student. The study by Sofyan et al. (2013) concluded a positive and significant influence between facilities and student loyalty with a relationship strength of 0.659 and a coefficient of determination of 0.434.

In this research, the student's perceived satisfaction significantly affected student loyalty. Feelings of satisfaction could cause students to continue their education at Universitas Prima, be reluctant to choose another campus, be willing to recommend Universitas Prima Indonesia to others and show their loyalty to Universitas Prima Indonesia. It can be seen from the path coefficient test results that satisfaction had a significant influence on student loyalty (t-statistic = 2.271 ($>$ t-table): p-value = 0.024). To increase student satisfaction, Universitas Prima Indonesia can make a breakthrough that makes it easier for students to pay tuition fees, activity fees, BPJS and other payments, and access to the smooth resolution of various student needs problems.

The final analysis in this study examined the effect of the quality of academic information systems on student loyalty through satisfaction as an intervening variable. The statistical tests results uncovered that the academic information system had a significant positive effect on student loyalty through satisfaction, so the satisfaction variable could mediate the quality of the academic information system on student loyalty (t-statistic = 2.131 ($>$ t-table): p-value = 0.034) (see Table 6). The conclusion is that the quality of the academic information system is one of the factors that can be a source of excellence in competing with other private universities. Thus, Universitas Prima Indonesia must be able to understand what students need regarding the system so that students can understand and are more interested in using the system more often as a means that can help according to their needs. The better and more complete the system, the easier it will be

for students to understand; hence, it will give students satisfaction with the Universitas Prima Indonesia system, which leads to student loyalty to study at Universitas Prima Indonesia. Research by Verriana and Anshori (2017) concluded something similar, revealing the path coefficient value of 0.47 with a significant p-value <0.001 at the 1% level. Hartono (2007) argued that measuring the quality of academic information systems is conducted to see the quality of the use of these systems and measure the quality of academic information systems in terms of user information satisfaction, system usage and information value, and proposes using user satisfaction as a measure of the use of academic information systems.

Furthermore, the analysis of the effect of facilities on student loyalty through satisfaction as an intervening variable showed a significant effect (t-statistic = 2.220 ($>$ t-table): p-value = 0.027). It can be concluded that complete, adequate, comfortable, and appropriate facilities make students comfortable and satisfied. The higher the level of satisfaction felt by each student, the greater the influence on the high loyalty of students to continue studying at the Faculty of Economics, Universitas Prima Indonesia and recommend to the public. In this case, every college-oriented service business always wants to optimize the quality of service to satisfy its students. One form of this service is the availability of complete and adequate facilities for students to enjoy during their studies. Therefore, if the facilities provided can satisfy the desires and needs of students, students will provide positive feedback in the form of loyalty.

Research by Sofyan et al. (2013) also concluded the same thing, where facilities had a significant effect on loyalty through satisfaction. It was indicated by the value of the correlation coefficient, which showed a strong relationship equal to 0.728, meaning that any small/slight change would affect a greater change in loyalty. In addition, the coefficient of determination was 0.515 (51.5%). Kotler and Keller (2009) also argued that facilities are everything intentionally provided by service providers to be used and enjoyed by consumers to provide a maximum level of satisfaction. Facilities are also everything physical equipment provided by the service seller to support consumer convenience.

Conclusion

This study concludes that a good academic information system and facilities will increase student satisfaction. Loyalty will also increase if the quality of academic information systems and facilities for students is improved. The statistical test results also show that if the information system is complete, accurate, and good, the level of satisfaction will be high, and student loyalty will increase. Likewise, if the facilities are complete, adequate, and good, the satisfaction will be high, and student loyalty will increase. It is recommended that faculty managers resolve/respond to student requests and complaints in the academic information system service system as soon as possible and add features for payment of tuition fees, court hearings, BPJS, and other payment activities. Supervision and training of administrative staff and technicians also need to be provided regularly to increase competence in conducting maintenance and repairs of all

facilities used for the learning process. However, this study only took one faculty sample and used two independent variables. Therefore, researchers suggest that further studies use more variables in measuring student loyalty.

References

- Agnes, M., Jola, L., & Gaspersz, S. (2018). Academic Information System for Student (Case Study: Victory University of Sorong). *International Journal of Computer Applications*, 180(43), 26–33. <https://doi.org/10.5120/ijca2018917134>
- Aithal, P. S., & Aithal, S. (2019). Building World-Class Universities: Some Insights & Predictions. *International Journal of Management, Technology, and Social Sciences*, 4(2), 13–35. <https://doi.org/10.47992/ijmts.2581.6012.0067>
- Aswati, S., Mulyani, N., Siagian, Y., & Syah, A. Z. (2015). Peranan Sistem Informasi Dalam Perguruan Tinggi. *Jurnal Teknologi dan Sistem Informasi*, 1(2), 79–86. Retrieved from <http://is.its.ac.id/pubs/oajis/index.php/home/detail/1466/PERANAN-SISTEM-INFORMASI-DALAM-PERGURUAN-TINGGI>
- Aulianto, D. R., Alamsyah, A., & Rohmiyati, Y. (2012). Pengaruh penerapan sistem informasi akademik terhadap kualitas layanan akademik mahasiswa di Fakultas Ilmu Sosial dan Ilmu Politik Universitas Diponegoro. *Jurnal Ilmu Perpustakaan*, 1(1), 1-8. Retrieved from <https://ejournal3.undip.ac.id/index.php/jip/article/view/459>
- Bakrie, M., Sujanto, B., & Rugaiyah, R. (2019). The Influence of Service Quality, Institutional Reputation, Students' Satisfaction on Students' Loyalty in Higher Education Institution. *International Journal for Educational and Vocational Studies*, 1(5), 379–391. <https://doi.org/10.29103/ijeys.v1i5.1615>
- Brown, R. M., & Mazzarol, T. W. (2008). The importance of institutional image to student satisfaction and loyalty within higher education. *Higher Education*, 58(1), 81–95. <https://doi.org/10.1007/s10734-008-9183-8>
- Bryant, J., & Bodfish, S. (2014). The Relationship of Student Satisfaction to Key Indicators for Colleges and Universities. *National Research Report*.
- Chin, W. W. (1998). The partial least squares approach for structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates Publishers.
- DeLone, W. H., & McLean, E. R. (1992). Information Systems Success: The Quest for the Dependent Variable. *Information Systems Research*, 3(1), 60–95. <https://doi.org/10.1287/isre.3.1.60>
- DeShields, O.W., Kara, A., & Kaynak, E. (2005). Determinants of business student satisfaction and retention in higher education: applying Herzberg's two-factor theory. *International Journal of Educational Management*, 19(2), 128-139. <https://doi.org/10.1108/09513540510582426>
- Díaz, O.P., Ribes-Giner, G., & Perello-Marin, M.R. (2016). The Impact of Cocreation on the Student Satisfaction: Analysis through Structural Equation Modeling. *Abstract and Applied Analysis*, 2016(Special Issue), 1-10. <https://doi.org/10.1155/2016/3729791>
- Doan, T. T. T (2021). The Influence of University Sustainability Practices on Student Loyalty: An Empirical Study from Vietnam. *The Journal of Asian Finance, Economics and Business*, 8(10), 177–185. <https://doi.org/10.13106/JAFEB.2021.VOL8.NO10.0177>
- Dora, Y. M. (2017). Analysis Effect of Service Quality, Educational Facilities, and Method of Learning, Student Satisfaction and Loyalty to Students - Studies in the University of Widyatama Bandung. *European Journal of Social Sciences Education and Research*, 10(1), 16-27. <https://doi.org/10.26417/ejsr.v10i1.p16-27>

- Ehigie, B. O., & Taylor, M. (2009). Managing students' loyalty to school after graduation through relationship marketing. *The TQM Journal*, 21(5), 502-516. <https://doi.org/10.1108/17542730910983416>
- Fagbohunka, A. S. (2017). Infrastructural Facility and the Students' Academic Performance - A Critique. *Indonesian Journal of Geography*, 49(1), 11-16. <https://doi.org/10.22146/ijg.12437>
- Ghozali, I., & Latan, H. (2015). *Konsep, Teknik, Aplikasi Menggunakan Smart PLS 3.0 Untuk Penelitian Empiris*. Semarang: Badan Penerbit Universitas Diponegoro.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152. <https://doi.org/10.2753/mtp1069-6679190202>
- Hamzah, M. L., & Purwati, A. A. (2017). Sistem Manajemen Inventori Komputer Menggunakan Near Field Communication Berbasis Android Studi Kasus di STIE Pelita Indonesia Pekanbaru. *Journal of Economic, Business and Accounting*, 1(1), 95-104. <https://doi.org/10.31539/costing.v1i1.46>
- Hasan, M., & Hosen, M. Z. (2020). University Service Quality: The Impact of Student Satisfaction and Loyalty in Public Universities of Bangladesh. *International Journal of Asian Education*, 1(3), 135-146. <https://doi.org/10.46966/ijae.v1i3.46>
- Henim, S. R., & Sari, R. P. (2020). User Experience Evaluation of Student Academic Information System of Higher Education Using User Experience Questionnaire. *Jurnal Komputer Terapan*, 6(1), 69-78. <https://doi.org/10.35143/jkt.v6i1.3582>
- Kotler, P., & Keller, K. L. (2009). *Marketing Management, 13th Ed.* Pearson Prentice Hall, Upper Saddle River.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30(3), 607-610. <https://doi.org/10.1177/001316447003000308>
- Lai, S., Pham, H.-H., Nguyen, H.-K., Nguyen, T.-C., & Le, A.-V. (2019). Toward Sustainable Overseas Mobility of Vietnamese Students: Understanding Determinants of Attitudinal and Behavioral Loyalty in Students of Higher Education. *Sustainability*, 11(2), 1-17. <https://doi.org/10.3390/su11020383>
- Malik, M. E., Danish, R.Q., & Usman, A. (2010). The Impact of Service Quality on Students' Satisfaction in Higher Education Institutes of Punjab. *Journal of Management Research*, 2(2), 1-11. <https://doi.org/10.5296/jmr.v2i2.418>
- Mallika Appuhamilage, K. S., & Torii, H. (2019). The impact of loyalty on the student satisfaction in higher education. *Higher Education Evaluation and Development*, 13(2), 82-96. <https://doi.org/10.1108/heed-01-2019-0003>
- Muhroji, H., & Fathoni, A. (2006). *Manajemen Pendidikan*. Surakarta: Program Akta Mengajar, FKIP-UMS.
- Murdick, R. G., Ross, J. E., & Claggett, J. R. (1985). *Information Systems for Modern Management*. New Delhi: Prentice-Hall.
- Napitupulu, D., Rahim, R., Abdullah, D., Setiawan, M., Abdillah, L., Ahmar, A., ... Pranolo, A. (2018). Analysis of Student Satisfaction Toward Quality of Service Facility. *Journal of Physics: Conference Series*, 954, 012019. <https://doi.org/10.1088/1742-6596/954/1/012019>
- Navarro, M. M., Iglesias, M. P., & Torres, P. R. (2005). A new management element for universities: satisfaction with the offered courses. *International Journal of Educational Management*, 19(6), 505-526. <https://doi.org/10.1108/09513540510617454>
- Nugroho, A. W., & Sudaryanto, B. (2013). Pengaruh kinerja layanan, kepercayaan dan kepuasan terhadap loyalitas konsumen dalam menggunakan jasa pengiriman barang. *Diponegoro Journal of Management*, 2(3), 1-9. Retrieved from

- <https://ejournal3.undip.ac.id/index.php/djom/article/view/32000>
- O'Brien, J. A. (2005). *Pengantar Sistem Informasi Prespektif Bisnis Dan Manajerial*. Jakarta: Salemba Empat.
- Purwati, A., Hamzah, M., Hamzah, H., & Rahman, S. (2018). Pengaruh Kualitas Sistem Informasi Akademik terhadap Kepuasan dan Loyalitas Mahasiswa Perguruan Tinggi. *COSTING : Journal of Economic, Business and Accounting*, 2(1), 84-92. <https://doi.org/https://doi.org/10.31539/costing.v2i1.426>
- Qadri, M. N., Wekke, I. S., Abbas, B., Yunus, A., Saeka, S., ..., Almana, L. O. (2021). Testing The Relationship of Academic Information System, Service Units Performance, and Student Satisfaction in Private Higher Education Institutions. *Proceedings of the International Conference on Industrial Engineering and Operations Management, IEOM Society International, Harbin, China*, pp. 358–366.
- Rojas-Méndez, J. M., & Vasquez-Parraga, A. Z. (2014). Determinants of Student Loyalty in Higher Education: A Relationship Marketing Approach. *Proceedings of the 2007 Academy of Marketing Science Annual Conference*, 51–51. https://doi.org/10.1007/978-3-319-11806-2_30
- Sanjaya, W. (2016). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Prenadamedia.
- Setiawan, A.D., Purnama, B.E., & Sukadi, S. (2013). Pembuatan Sistem Informasi Akademik Berbasis Web Pada Sekolah Menengah Atas Negeri 1 Ngadirojo. *Indonesian Journal on Networking and Security*, 4(1), 1-5.
- Sofyan, I. L., Pradhanawati, A., & Nugraha, H. S. (2013). Pengaruh Fasilitas dan Kualitas Pelayanan Terhadap Loyalitas, Melalui Kepuasan Konsumen Sebagai Variabel Intervening pada Star Clean Car Wash Semarang. *Jurnal Ilmu Administrasi Bisnis*, 2(2), 1-12. Retrieved from <https://ejournal3.undip.ac.id/index.php/jiab/article/view/2505>
- Syastra, M. T. (2013). Pengaruh Kualitas Sistem Informasi Akademik Mahasiswa Terhadap Kepuasan Mahasiswa SIT Indonesia Tanjungpinang. *Computer Based Information System Journal*, 1(1), 97–108. Retrieved from <https://ejournal.upbatam.ac.id/index.php/cbis/article/view/348>
- Tariq, J. T., Khan, K., Hussainy, S. K., & Tariq, S. (2020). Antecedents and Consequences of Student Loyalty in Higher Education. *Journal of Independent Studies and Research-Management, Social Sciences and Economics*, 18(2), 25–44. <https://doi.org/10.31384/jisrmsse/2020.18.2.3>
- Tripathi, P., & Mukerji, S. (Eds.). (2013). *Marketing Strategies for Higher Education Institutions: Technological Considerations and Practices*. India: IGI Global. <https://doi.org/10.4018/978-1-4666-4014-6>
- Utomo, L. T., Ardianto, Y. T., & Sisharini, N. (2017). Pengaruh kualitas sistem, kualitas informasi, kualitas layanan, terhadap kepuasan pengguna sistem informasi akademik universitas merdeka malang. *Jurnal Teknologi dan Manajemen Informatika*, 3(2), 149-160. <https://doi.org/10.26905/jtmi.v3i2.1425>
- Verriana, R. I., & Anshori, M. Y. (2018). Pengaruh kualitas layanan (service quality) terhadap loyalitas melalui kepuasan pada mahasiswa Universitas NU Surabaya. *Accounting and Management Journal*, 1(1), 63-79. <https://doi.org/10.33086/amj.v1i1.73>
- Warnadi, W. (2019). Pengaruh kualitas pelayanan akademik dan fasilitas terhadap kepuasan mahasiswa Sekolah Tinggi Ilmu Ekonomi Indragiri (STIE-I) RENGAT. *Jurnal Manajemen dan Bisnis*, 8(1), 10-20. <https://doi.org/10.34006/jmbi.v8i1.59>
- Weerasinghe, I. M. S., & Fernando, R. L. S. (2018). University facilities and student satisfaction in Sri Lanka. *International Journal of Educational Management*, 32(5), 866–880. <https://doi.org/10.1108/ijem-07-2017-0174>
- Yindrizal, Y., Suwitri, S., & Sakti, W. N., & Purnawenil, H. (2019). Impact of The Use

Sianipar, Pakpahan, & Manalu
The Role of Quality of Academic Information Systems ...

- Academic Information System to Improve Student Satisfaction of Academic Administration Services in Universitas Andalas Padang. *International Journal of Scientific & Engineering Research*, 10(5), 1319-1331.
- Zurainan, A., Mat Nazir, E., & Md Sabri, S. (2021). The Impact of Facilities Management on Students' Academic Achievement. *Jurnal Intelek*, 16(1), 27-39. Retrieved from <https://myjms.mohe.gov.my/index.php/intelek/article/view/15946>